

# Feeding Insect Eating Reptiles

## WHAT IS AN INSECTIVORE?

An insectivore diet consists completely or partially of insects. Amphibians, some turtles and snakes, and many lizards belong to this group (Table 1).

**Table 1.** Insect eating lizards

---

• Agamas (Agamidae)	• Geckos
• New World anoles ( <i>Anolis</i> spp.)	• Smaller monitor as well as the young of larger monitors
• Basilisk lizards ( <i>Basiliscus</i> spp.)	• Most skinks
• Old World chameleons (Chamaeleonidae)	• Spiny-tailed lizard ( <i>Uromastyx</i> spp.)
• Chuckwallas ( <i>Sauromalus</i> spp.)	• Tegus ( <i>Tupinambis</i> spp.)
• Fence lizards ( <i>Sceloporus undulatus</i> )	• Water dragons ( <i>Physignathus cocincinus</i> )

---

## OFFER A VARIETY OF INSECTS

In the wild, reptiles eat a wide variety of insect prey. Most captive reptiles can be fed mealworms and crickets, as well as the occasional high-fat waxworm, which are all available at the local pet shop. Mealworms can also be grown in a mealworm 'farm', and earthworms can be obtained from a local bait shop. Other commercially available insects include cockroaches, fruit flies, tomato hornworms, wax moth larvae, and silkworms.

There is a risk of parasite transmission with wild-caught outdoor insects, however seasonally available insects include moths, cicadas, flies, grasshoppers, cockroaches, and bees (remove the stingers). Insects are easily collected at night around lights or with funnel traps. Sowbugs or pill bugs are also a rich source of calcium. Of course insecticide or pesticide exposure is also a possibility with wild-caught insects but this is rarely recognized.

**DO NOT** feed fireflies, spiders, wasps, Eastern tent caterpillars, or other potentially toxic insects.

## PREPARING INSECT PREY

Insects are a rich source of protein and fat, however insects are deficient in calcium. To improve the calcium content of insect prey...

### 1. "Gut load"

Feed insects a calcium-rich diet for at least 24-48 hours prior to feeding out to ensure the insect's digestive tract is full of calcium. Trusted commercially available insect diets include Hi-Ca Cricket Diet (Mazuri®) and Calcium Plus Food for Crickets (T-Rex®). Provide crickets with water via a damp paper towel or sponge.

If insects are kept for longer periods, feed a complete, nutritious diet that includes fruits and vegetables until it is time to gut-load.

## 2. Dust insects

Even with gut loading, most experts agree that insects are still deficient in calcium and some vitamins, particularly when feeding young, rapidly growing insectivores. Therefore insect prey is also dusted with calcium and/or vitamin powder.

Dust insects with supplement by placing the prey item in a container or plastic bag and lightly shaking. Crickets can groom off much of the dust within 30 minutes and all dust is removed within several hours, so always dust just prior to feeding.

<u>Calcium supplement</u>
Dust insect prey fed to juveniles with calcium powder once daily. As the animal grows, the rate of dusting should decrease. Adult prey is usually dusted with calcium once or twice weekly.

<u>Multivitamin supplement</u>
Young, growing lizards should receive a multivitamin once or twice weekly. Administer vitamins every 2-4 weeks to adults.

A wide variety of supplements are available in pet stores, and they range in quality from very good to extremely poor. Generally a calcium supplement that is free of phosphorus and vitamin D is recommended, but consult your reptile veterinarian for specific advice.

## PRACTICAL MATTERS OF FEEDING INSECT PREY

Live prey: Movement stimulates feeding behavior so allow insects to travel throughout the enclosure or place prey in a bowl. Place insects directly in front of chameleons or within a smooth-sided bowl suspended in the branches.

Prey size: Insect prey should be no longer than the width of the lizard's head; a preferable size is 75% of the reptile's head width.

Prey number: Count the number of insects before placing them in the cage so the amount eaten can be determined. Only offer as many insects as the reptile can eat at one time.

Remove uneaten prey: Remove insects that are uneaten after 6-8 hours as insect prey can actually nibble on predator body parts. Leftover insects will also groom off supplement. If the insectivore routinely eats "groomed" insects, this could result in nutritional deficiencies, particularly in growing or reproductively active individuals.

Frequency: Feed adult lizards once daily; feed juveniles two to three times a day.

Temperature: Proper digestion of insect prey requires an appropriate temperature gradient.

## References

- Barten SL. Lizards. In: Mader DR, ed. *Reptile Medicine and Surgery*, 2<sup>nd</sup> edition. Saunders Elsevier; St. Louis: 2006:71-73.
- Boyer TH. What to feed reptiles. Proc Western Veterinary Conference. 2011. Available at <http://www.vin.com/members/proceedings/proceedings.plx?CID=WVC2011&PID=82313&O=VIN&id=518352>. Accessed on July 17, 2013.
- de la Navarre BJS. Reptile and amphibian nutrition. 2012. Proc Atlantic Coast Veterinary Conference. Available at <http://www.vin.com/members/proceedings/proceedings.plx?CID=ACVC2012&PID=85704&O=VIN&id=5540544>. Accessed on July 16, 2013.
- Donoghue S. Nutrition. In: Mader DR, ed. *Reptile Medicine and Surgery*, 2<sup>nd</sup> edition. Saunders Elsevier; St. Louis: 2006:251-298.
- Finke M, Dunham S, Kwabi C. Evaluation of four dry commercial gut loading products for improving the calcium content of crickets, *Acheta domesticus*. *J Herp Med Surg* 15(1):7-12, 2005.
- Finke M, Dunham S, Cole J. Evaluation of various calcium-fortified high moisture commercial products for improving the calcium content of crickets, *Acheta domesticus*. *J Herp Med Surg* 14(2):17-20, 2004.
- Maas A. Care and feeding of insectivorous reptiles. The Center for Bird & Exotic Animal Medicine website. Available at <http://theexoticvet.com/care-sheets/care-and-feeding-of-insectivorous-reptiles/>. Accessed on July 17, 2013.
- Rossi JV. General husbandry and management. In: Mader DR, ed. *Reptile Medicine and Surgery*, 2<sup>nd</sup> edition. Saunders Elsevier; St. Louis: 2006:25-41.